

What Is Claimed Is:

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1. A high stability, low emission, invert fuel emulsion composition for an internal combustion engine comprising purified water; hydrocarbon petroleum distillate fuel as the continuous phase of the emulsion; and a surfactant package comprising primary surfactant, block copolymer, and polymeric dispersant, said emulsion being made by a continuous flow process comprising the steps of:

a) blending a flow of additives comprising said surfactant package and a flow of said hydrocarbon petroleum distillate fuel in a first in-line blending station;

b) blending a flow from the in-line blending station of step a) with a flow of said purified water in a second in-line blending station;

c) aging the composition from the second in-line blending station of step b) in a reservoir;

d) passing the aged composition from step c) through a shear pump to a storage tank.

2. The invert fuel emulsion composition of claim 1 comprising 5-50 wt % purified water and 50-95 wt. % hydrocarbon petroleum distillate fuel.

3. The invert fuel emulsion composition of claim 1 comprising at least 4000 ppm primary surfactant.

4. The invert fuel emulsion composition of claim 3 wherein said primary surfactant is an amide.

5. The invert fuel emulsion composition of claim 4 wherein said primary surfactant is selected from the group consisting of unsubstituted, mono- and di-substituted amides of saturated C<sub>12</sub>-C<sub>22</sub> fatty acids

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and unsubstituted, mono- and di-substituted amides of unsaturated C<sub>12</sub>-C<sub>22</sub> fatty acids,

wherein said mono and di substituted amides are substituted by substituents selected, independently of each other, from the group consisting of straight and branched, unsubstituted and substituted alkyls having 1 to 4 carbon atoms, straight and branched, unsubstituted and substituted alkanols having 1 to 4 carbon atoms, and aryls.

6. The invert fuel emulsion composition of claim 5 wherein said primary surfactant is a 1:1 fatty acid diethanolamide of oleic acid.

7. The invert fuel emulsion composition of claim 1 comprising from about 1,000 ppm to about 5,000 ppm block copolymer.

8. The invert fuel emulsion composition of claim 7 wherein said block copolymer is an EO/PO block copolymer.

9. The invert fuel emulsion composition of claim 8 wherein said block copolymer is selected from the group consisting of PLURONIC 17R2, PLURONIC 17R4, PLURONIC 25R2, PLURONIC L43, PLURONIC L31, AND PLURONIC L61.

10. The invert fuel emulsion composition of claim 9 wherein said block copolymer is octylphenoxypolyethoxyethanol (PLURONIC 17R2).

11. The invert fuel emulsion composition of claim 1 comprising about 100 ppm to about 1,000 ppm polymeric dispersant.

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12. The invert fuel emulsion composition of claim 11 wherein said polymeric dispersant is ICI HYPERMER E-464.

5 13. The invert fuel emulsion composition of claim 1 comprising  
10-50% purified water;  
50-90% hydrocarbon petroleum distillate  
fuel;  
10 at least 4000 ppm amide primary emulsifier;  
between about 2000 and about 3000 ppm EO/PO  
block polymer; and  
between about 600 and about 800 ppm  
polymeric dispersant.

15 14. The invert fuel emulsion composition of claim 13 wherein said amide primary surfactant is Schercomid SO-A (Scher Chemical).

20 15. The invert fuel emulsion composition of claim 13 wherein said block copolymer is Pluronic 17R2 (BASF).

25 16. The invert fuel emulsion composition of claim 13 wherein said polymeric dispersant is Hypermer E-464 (ICI).

30 17. The invert fuel emulsion composition of claim 1 said emulsion having an average droplet size of less than about 5 microns.

35 18. The invert fuel emulsion composition of claim 17 said emulsion having an average droplet size of about 1 micron or less.

19. The invert fuel emulsion composition of

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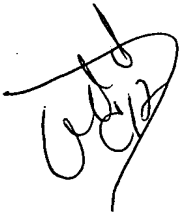
claim 18 said emulsion having an average droplet size ranging from about 0.1 microns to about 1 micron.

20. The invert fuel emulsion composition of  
5 claim 1 further comprising one or more additives  
selected from the group consisting of lubricants;  
corrosion inhibitors; antifreezes; and ignition delay  
modifiers.

10 21. The invert fuel emulsion composition of  
claim 20 wherein said flow of additives of step a) is  
comprised of said surfactant package and said one or  
more additives.

15 22. The invert fuel emulsion composition of  
claim 21 wherein said flow of additives of step a) is  
comprised of a blended flow of a flow of an antifreeze  
and a flow of said additives blended in a third in-  
line blending station.

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